

# CACTUS AND SUCCULENT JOURNAL

Of the Cactus And Succulent Society  
Of America

Vol. XIV

JULY, 1942

No. 7



FIG. 53. *Bergerocactus Emoryi*, in its robust form, photographed by Graham Heid in Baja California.



## CACTUS AND SUCCULENT JOURNAL

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## EDITORIAL

## A New Monograph

When we undertook the publication of *The Cactaceae* of Britton and Rose, it seemed a financial impossibility. After sending a questionnaire to our membership we were confident that there was sufficient interest and soon the publication was completed. Next to the JOURNAL, this undertaking has been one of the chief influences which has placed cacti among the well known plants that will be grown, not as a fad, but indefinitely.

Now we have reached another milestone. For several years we have known of the completed manuscript for another monograph. Rough estimates figure that four to five-hundred pages would be necessary to do this monograph in the same high quality as the White and Sloane monographs by Abbey Press.

The proposed monograph is for the cactus enthusiasts, and deals with one of the most popular and interesting genera—Mammillarias. For years Robert Craig has been painstakingly re-writing the many incomplete descriptions of this genus and with his many field trips into Mexico, he has done a thorough job. Mammillarias as a group are well represented in every collection and are grown, not for flowers which are far from spectacular, but for the beauty and hardiness of the plants. Of all the cacti, this is one of the most popular genera and deserves priority in monographs.

"But we are at war." So we are, and we will promote nothing that drains labor or material from the offense program. Many of us served in the last war and unfortunately are not trained for mechanical production. It is for us, then, to carry on the scientific work until these who are in active service can resume their pre-war interests again. So many of our foreign members have said, "We sincerely hope that you in

America can keep on in this work, it means so much to us who have been placed in less fortunate positions." The appreciation of the work of White and Sloane is an example of what can be done in war time to help stabilize a world-wide morale.

The new monograph could be started immediately providing there is encouraging response. So often one says, "Let the other fellow do it," and later regrets the lack of initiative. We need 500 members to express their interest in this project and the cost of the monograph should not exceed \$7.50. Who would not be glad to send \$2.50 with the signed order, and the balance on delivery?

Send no money but mail a post card now and indicate the number of books you and your friends can use. Remember, Abbey books have always been a good investment. Send a card today to Box 101, Pasadena, California.

SCOTT E. HASELTON.

## VISITORS WELCOME

Dr. Abraham A. Bernhardt, 402 Monroe St., Brooklyn, N. Y.

Mrs. C. H. Mikelson, 541 Mississippi St., San Francisco. Please phone for appointment.

Mrs. Lulie G. Smith, 29 Andrew St., Salem, Mass.

## ANNOUNCING

For a number of years Mr. Albert Arozena has been sales manager for R. W. Poindexter Nursery.

He has now purchased the nursery site, equipment, and nursery stock in Compton, California, which will continue to operate with no interruption except a change of name to ALBERT AROZENA NURSERY.

Mr. Arozena has been personally responsible for all sales, as well as a large part of production for some time past and will continue to give the same or better service than in the past—probably better.

R. W. Poindexter Nursery will continue to operate as a firm specializing in Epiphyllums. Address Carlsbad, California.

ROBERT POINDEXTER.

EDITOR'S NOTE: It may be true that the quality of a man is judged by his enemies but we like to think that a man who never made an enemy is a most likable character—such a fellow is Albert, and we wish him continued success.

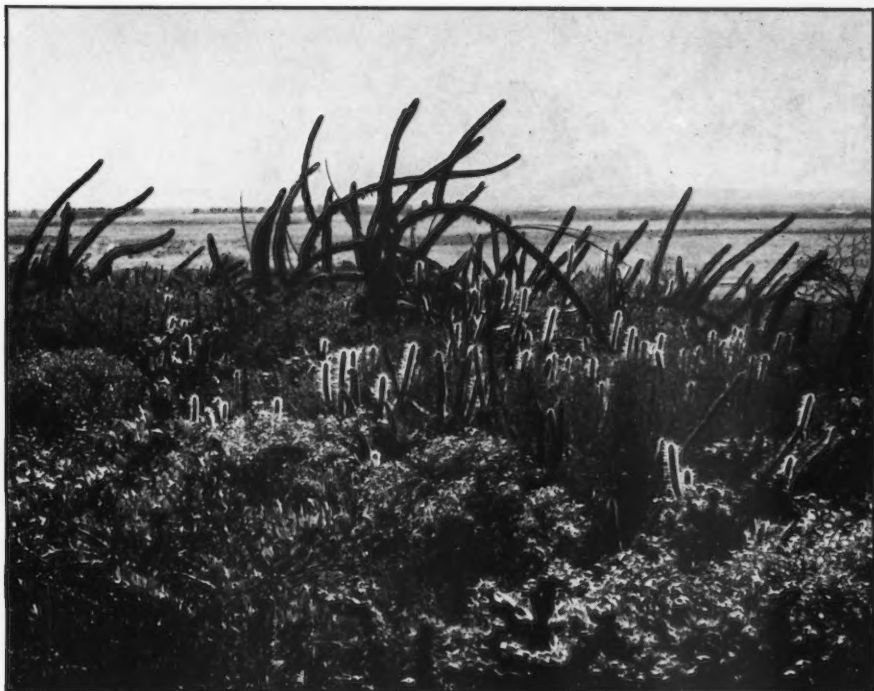


FIG. 54. Typical landscape near Hamilton's.

## To Hamilton's Ranch for Cañi

By GRAHAM HEID

Photos by Author

Baja California is a little-known territory except to a few hunters and scientific explorers, and yet it is right at our door-step. Its backbone of mountains rises to nine- and ten-thousand foot peaks, and its flat desert plains slope gently to the sea. It presents every kind of flora from tropical verdure at its southern tip, through arid desert types to nearly Alpine species in the pine forests of the mountains. It has been explored by a number of botanists: Purpus, the Brandegees, our friends Howard Gates and William Marshall, to name a few. But there is plenty of room for more work. It offers excellent material for speculation by those who feel inclined to botanize in "new" country.

Our trip was a tentative venture to learn what we'd be up against on a more extensive trip later on. The war, with its far-reaching ramifications, has put a new value on our car, in our eyes at least, and indefinitely postponed our main trip. However, the week-end spent at

Hamilton's Ranch (about 180 miles south of Tijuana) was interesting in itself.

Let me say at the outset that the roads are bad. That's a gross understatement, but let it stand. This is probably a matter of pure economy, for the slight amount of traffic in Baja California wouldn't seem to justify expensive road maintenance. Anyway, it is an excellent "vandal filter" and the stands of cacti are virtually untouched.

At Ensenada, on Todos Santos Bay, is the most northerly stand of *Machaerocereus gummosus* Eng., a stout-spined grotesque devil, whose arching stems, eight feet high, look like writhing serpents. The Indians are reported to crush the stems and throw the pulp into streams, thus drugging the fish therein, and making them easily caught.

The beautiful *Bergerocactus Emoryi* Eng. is very much in evidence the whole way to Hamilton's. The long yellow spines of these plants

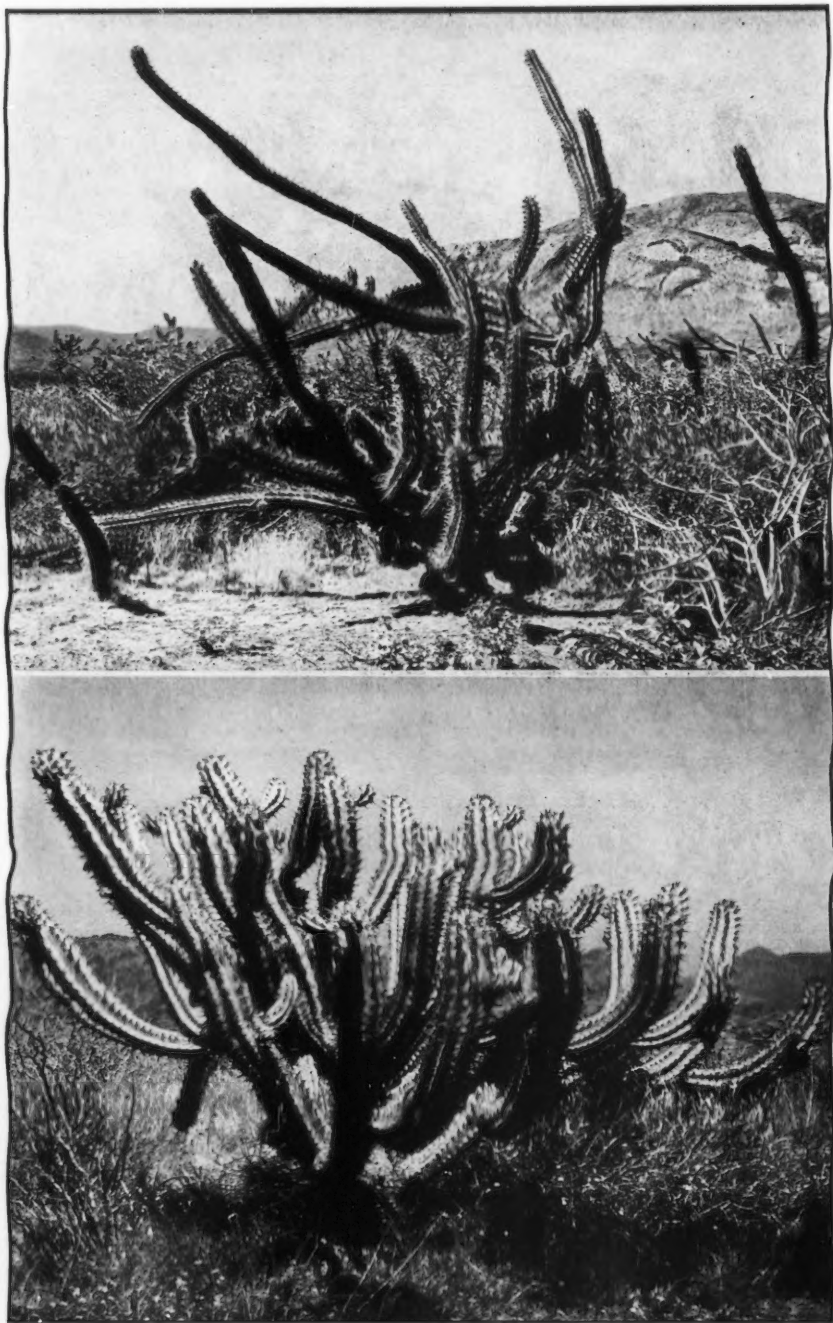


FIG. 55. (Above) *Machaerocereus gummosus* commonly seen from Ensenada south to Hamilton's.  
FIG. 56. (Below) *Myrtillocactus Cochal* near Hamilton's Ranch, Baja California.



appear as a golden aura when the sun shines through them. On the coast, the stems are about the size of a broomstick, but as the road turns inland south of Ensenada, clumps were seen having stems the diameter of a man's wrist.

Santo Tomas, San Vicente, San Antonio del Mar! Here is Alta California as it must have been a hundred years ago. Uncultivated plains grown with sage-brush and cacti, and colorful spring flowers. Rivers to ford, and dry barrancas to dip through; a dusky cowboy shouting at his cattle and giving us a white-toothed grin; and every ten miles bringing new cacti into view.

We passed acres of *Ferocactus viridescens* Torr. and Gray, and *Echinocereus maritimus* Jones with its bright yellow flowers dazzling in the sun. Spots of color in this monochromatic landscape are prizes to the eye. For this reason the colorful wild flowers, and especially the brilliant flower gardens surrounding the little white-washed houses of Santo Tomas, are delightful.

At sunset we were rolling along a fairly level stretch of road nearing Hamilton's ranch. Off to our right below the cliffs stretched the very calm, very blue ocean and to the left the mountains colored by the sunset. All about us were clumps of *Myrtillocactus Cochal* Orcutt, huge candelabra affairs with farcically tiny fruits like myrtle berries.

It was dark and we were hot, dusty, and tired as we crossed a last river and rolled in to Hamilton's Ranch. But what a reward! We were greeted by Miss Hattie Hamilton and her sister, Mrs. Lucas and were certainly made to feel welcome.

After our showers (priceless luxuries) and a smoke in the guest-house patio, we were ready for dinner in the picturesque old ranch house, covered with an ancient lavender trumpet-vine.

Two days of photographing and wandering about the vicinity and we regretfully took leave.

We started at dawn, for we knew from experience, now, that the one-hundred mile trip to Ensenada would take us exactly ten hours!

#### AMATEUR GROWING CONTEST

Before planting the 20 experimental plants you should have read, "Cacti for the Amateur" for a general understanding of the cultivation of cacti. Many readers have remarked that this little book has answered many of their questions and that sad mistakes would have been avoided if they had read the contents before starting collecting.

There are no hard and fast rules that can be laid down to cover all requirements. It is absolutely necessary to get the "feel" (not jokingly) of the plants by growing them. Many of us have not been able to experiment with plants because ours were too costly, therefore this amateur collection will solve that problem and we should carry out the experiments even though some of the plants do not survive the various treatments.

Read the directions and purposes of the experiment

in the June JOURNAL, page 82, or the BULLETIN No. 2, page 6. The outline is a suggestion and not a requirement. The goal is to grow a healthy plant and to produce flowers.

What ever you do, keep careful records—even samples of the various elements that go into the soil mixtures. Most experiments are meaningless because of improper notes and observations. The manner of presenting the report in a concise form will have much to do with the selection of the best grower.

All sections of the country have expressed interest in this contest, except the entire West Coast! The Midwest Cactus and Succulent Society has 15 entrants which was so surprising that Ye Editor may have to back down on free cuttings for the present, since his shipping department is set up for books and not plants.

Those receiving plants must remember that no more sets will be mailed out after July 1st. The price you paid is at least one-fourth of the retail price—no, we are not selling plants.

The four sets of plants are: *Echinopsis* hybrids, *Notocactus submammulosus*, Mam. elongata, *Hamatocactus setispinus* (3 plants), and Mam. *campitricha* (2 plants). These are not rare plants but they should respond to varied treatments and include both the soft and firm types.

If you place the plants out-of-doors, protect them from damaging rains, animals (rats, cats, dogs), pests (especially snails, sow-bugs, ants, grasshoppers), etc. Small screens may save you from early losses.

Read each JOURNAL or BULLETIN for additional information or reports. Send along reports any time and we will publish experiences or procedures as we go along. We are holding a "control" set here to see how California sun (Chamber of Commerce, please note) can compete with that of other localities.

R. W. Kelly, who grew your 20 plants is proud of them and offers no apologies. However, it's best to get the habit of carefully spraying any new plants and then keep them clean.

We are enclosing small plants as follows: *Opuntia monacantha* (fruit). See page 44, "Cacti for the Amateur." To root and then see who can grow the largest plant by fall, 1943.

*Euphorbia submammillaris* (Cutting from plant shown on page 586 "The Euphorbiaceae"). To root and see who can grow the largest plant by fall, 1943.

*Notocactus scopia* var. *ruberrima* (Part of the grafted cluster to be pictured in a forthcoming JOURNAL). To root and see who can get the first flower.

*Cereopogia Woodii* (From plant pictured on page 57 of "Succulents for the Amateur"). Root the thickened bulb-like stem and see who can produce the first flower.

*Epiphyllum* from the Wegener collection. To root the cutting and see who can produce the first flower. Do not keep soil or sand too damp—keep on dry side.

I would not subject any of the unrooted plants to the various cultural conditions. Get root growth first. Some may prefer to push all of the plants this season and then they will be in better condition for real tests.

One experimenter said he planned to follow this procedure upon receipt of plants: "Wash all soil off the roots and wash the bases of the plants with an old tooth brush and spray solution as a safeguard against mealy bugs and thrip. Remove any dried out roots. Dip plant in spray solution and when dry dust with sulphur while in 'quarantine.' Set rooted plants in 4-in. pots and cans and water until it drains out at the bottom of the pot. If the soil dries out, water daily or every other sunny day during hot weather. Gradually expose to the sun. Sprinkle 'Bug-Get-A' around pots for sow bugs and 'Snarol' for snails. Watch for growing periods."

S. E. H.

# Something About Nomenclature Rules

By DR. LEON CROIZAT

In a previous article I have discussed the issue whether *Stenocactus* or *Echinofossulocactus* is the proper name for a certain genus of cacti. Against the opinion holding that *Echinofossulocactus* (1) is published as a subgenus I have affirmed the fact that this name, on the contrary, is published as a genus, concluding that *Echinofossulocactus* is a proper generic designation, while *Stenocactus* is correct for a subgeneric unit.

Important as it may be that this or that special case of nomenclature is set aright by a proper use of the evidence and a correct application of the Rules, it is far more important for the reader of this article to grasp the generalities of plant-naming and to enter, so to speak, behind the stage where the "game of names" is being played by botanists. Those familiar with the fundamentals of nomenclature are usually right in their decisions about details, because good practice merely consists of the correct application to special issues of well digested generalities. I am firmly convinced that nine out of ten errors made in naming plants are the direct result of an outright ignorance of the fact that Rules exist about such matters. This ignorance must be dispelled and will be dispelled. There is no more reason for a dentist to use a rusty and worn out drill than there it is for a student of plant life to be in the dark about certain issues of his craft. Those who may not feel that a study of the Rules is their professional duty will at least agree that it is convenient to have at hand a ready set of regulations to decide troublesome issues. To be frank, I decided to make a clean breast about the Rules and to learn everything I could about them, because I am lazy enough not to care being troubled twice with the same issue. Let us work out a problem thoroughly once, and take it easy the next time.

As a very important generality, the reader should learn that *at least three conflicting schools of nomenclature dominate the current classification of the Cactaceae*. These schools are, (a) That of Britton & Rose [Cactaceae, I-IV, 1919-

1923]; (b) That of Berger [Kakteen, 1929]; (c) That of Vaupel [Cactaceae pp. 594-651 in Engler's Nat. Pflanzenf. 21, 1925]. To these schools several others could be added, that of Fric and Backeberg, for instance, but it proves impossible to deal with them all in a series of clean-cut articles. I will discuss the classification of Backeberg at the proper time, nevertheless, because Backeberg deserves to be listened to, even when he plays tunes that do not agree with those of anybody else.

The school of Britton & Rose is basically dominated by the methods and the principles of the American Code of Nomenclature of 1904 and 1907; that of Berger is ruled, more or less, by the application of the Vienna and Bruxelles International Codes of 1905 and 1910; that of Vaupel is bound by nothing but Vaupel's own whim. As it is seen at a glance, none of these nomenclatures is free from fault. That of Britton & Rose is tainted by provincialism because it prefers the "American" to the "International" method, and to this very extent it often becomes untenable; that of Berger is old, as the current Code is that of Amsterdam, 1935. That of Vaupel, I am sorry to state, is upheld by the authority of Engler's *Natürlichen Pflanzenfamilien*, a work accepted as a standard throughout the world, and by Engler's not less widely used *Syllabus*. Vaupel's anarchical handling of nomenclature is a disgrace, as it will be proved at the proper place, and its inclusion in the pages of the *Natürlichen Pflanzenfamilien* is one of the reasons why this collection of standard monographs cannot always be looked upon without misgivings.

It is my intention to give in these pages a review of the classification of Britton & Rose, Berger, and Vaupel insofar as it involves units above the genus, in the main, or units like sections and series. My criticism will be mostly confined to the nomenclatural side, because I do not have the means, at present, to drive into the vitals of the generic concepts of these authors. The looseness of these concepts is striking, even at a glance, but very little can be done about genera until and unless one can get flowers and see live specimens. The classification of the Cactaceae is very exacting in this, that it requires a careful comparison of body-, flower-, and fruit-characters to define, as a whole, the natural groups which are the genera of this family. That Vaupel is exceedingly ill-advised in treating as *Echinocactus* such genera as *Lophophora* and

(1) The origin of this name is not accounted for in the majority of current references. It means *Echinocactus* with small furrows, from the Latin word *fossa*, diminutive *fossula*, a [small] grave or furrow: *fossulatus* accordingly means graven or furrowed. *Echinocactus*, as is well known, is Greek, connotating a prickly cactus. Hybrid Greek-Latin names, especially if they are too long and hard to pronounce, are not looked upon with favor by the Rules of Nomenclature (Rec. XV [a], Art. 59), but are not rejected. Thus, *Echinofossulocactus* is a bad example of nomenclature, but a legitimate name.

*Astrophytum* will be plain to all of us in America, but to do something about this is none of my immediate concern.

Like every other trial in a democracy, the trial of Britton & Rose, Berger, and Vaupel to be held in these pages before the public of the readers is to be conducted under the law. What, then, is the law to be used? The answer is ready made: the so called Amsterdam Code, that is, the set of Rules of Nomenclature revised by the International Botanical Congress held in Amsterdam in 1935.

Some students of plant-life dislike these Rules and by their comments spread mistrust about them, representing the Rules as a nest of quibbles devised to trap the candid lover of nature who tries to have as easy a time as possible ambling through the daisies. Without taking direct issue with this point of view, I am putting myself in the shoes of a humble servant of the majority. I ask those who do not "like" the Rules *what is to be done* when, as in the present case, Britton & Rose conflict with Berger, and Vaupel agrees with none but himself? If we do not fully and honestly use the rules of the Amsterdam Code, under whose authority shall the final verdict be returned, and Britton & Rose adjudged guilty of nomenclatural sins rather than Vaupel or Berger? I think that we ought to apply these rules in a square and open manner, whether we like them or not. If their application yield results that conform with common sense, why quibble? If this application on the contrary, leads to inconveniences and to contradictions, why not take note of these shortcomings and ask the next Botanical Congress to correct the obnoxious features which we have learned meanwhile to recognize? Nothing is lost either way, and to be constructive is more important than to be apparently "profound" and seemingly "critical."

Since I am to deal with subfamilies, tribes, sections and the like, and I must decide who is right and when, it is fair to all that I should clearly state the principles by which my decisions will be governed. As an attorney I am supposed to know the law before I take up the case. Here is the law, culled out of the International Rules of Botanical Nomenclature revised by the Amsterdam Congress of 1935, in such form as it immediately interests the subject at hand:

ARTICLE 23—Names of families are taken from the name of one of their present or former genera and end in *-aceae*.

ARTICLE 24—Names of subfamilies are taken from the name of one of the genera in the group, with the ending *-oideae*, similarly for the tribes with the ending *-eae*, and for the subtribes with the ending *-inae*.

ARTICLE 26—Names of subgenera and sections are usually substantives resembling the names of the genera. Names of subsections and other lower subdivisions of genera are preferably adjectives in the plural number, agreeing in gender with the generic name and written with an initial capital.

We need to know two more Articles, namely:

ARTICLE 12—The proper sequence of the units of classification between the family and the species is the following: Family, Subfamily, Tribe, Subtribe, Genus, Subgenus, Section, Subsection, Series, Subseries, Species. If this list is not sufficient it may be augmented by adding supplementary units with the understanding that these additions *do not introduce confusion and error*.

ARTICLE 13—The definition of all these units may vary according to personal opinion, but their relative order cannot be altered. Accordingly, the classification of Huth, for instance, who has divided the Subgenera of *Delphinium* into "Tribes" is unacceptable.

Is this common sense or a pack of technicalities and quibbles? Let us see, before we start using these Articles to carve out the classification of Britton & Rose, Berger and Vaupel.

ARTICLE 12—provides not less than 9 pigeonholes to file away any subdivision one may like to fancy between, let us say, the *Cactaceae* and *Cereus peruvianus*. There is enough room here to satisfy the requirements of the stuffiest student of plant-life in the world. If somebody wishes to begin with the Tribe and to end with the Section, as many do, he should not complain that the Rules cramp his style. Let him begin and end at the right spot ere he coins such peculiar entities as a "Subsubtribe" or a "Gruppe." By the same token, he who plays cards like a gentleman lays his deal squarely in the center of the table and does not throw it on the floor.

It is but fair that the names of subtribes, tribes and subfamilies should be derived from that of a genus under these units. When we go out to buy a tin labelled "Canned Salmon," we do not expect to find inside it mince pie. In the same manner, when we find a subfamily *Phyllanthoideae* we think of the *Euphorbiaceae*; *Phyllanthus* being one of the genera of this family, not of the *Cactaceae*, because *Phyllanthus* is not a genus under them. It is common sense that the Rules should outlaw the name *Phyllanthoideae* proposed by Salm-Dyck for a "tribe" of the *Cactaceae*.

In every deck of cards, regardless of its make, the king is represented as a man of mature age, with a heavy crown, a sceptre and a beard; the queen as a lady suitably dressed; the jack as a

young man, without a beard. It is common sense which dictates this form of standardization: even a short-sighted player can promptly spot a king in the pack, as distinct from a jack, and the beard becomes the royal symbol. Exactly in the same manner, the ending *-oideae* is the symbol of a subfamily and the ending *-inae* that of a subtribe. *The standardization of the endings, consequently, is a most desirable device of nomenclature.* Why should any one individual coin the names he likes, when every one has the right—and the means, by law—to recognize a subfamily or a subtribe at a glance? Does anybody play with cards having jacks looking like kings, kings looking like jacks, queens hardly distinguishable from kings and the like? Who is anybody compared with everybody?

And now, that the knife is ready, we are going to carve.

#### PRESIDENT'S MESSAGE

Thor Bock, our Corresponding Secretary, has enlisted in the United States Army, and Mrs. Maybelle Place has consented to fill the vacancy created. Mrs. Place has one of the outstanding collections here in Los Angeles and has been active in the Society for a number of years. Many of you, no doubt, met her at the Convention.

Affiliated Societies and those groups that wish to affiliate with the National Society will find Mrs. Place most willing to co-operate in helping you to organize, plan programs for your meetings, handle your local news that you wish published in the JOURNAL, etc. Address your letters to Mrs. Maybelle Place, 645 W. 40th Place, Los Angeles, California.

\* \* \*

A number of the Deputies to the Regional Vice-Presidents have written to this office in regard to their duties. This was discussed in the April issue of the JOURNAL, Vol. XIV, No. 4, page 52, in the President's Message. President Emeritus Marshall describes their duties as follows:

Regional Vice-Presidents are the direct representatives of the President in their respective districts and are assigned the duties of visiting affiliated groups as opportunity permits, fostering activities by affiliates, increasing membership by publicity, and reminding delinquent members to renew their subscriptions—in fact, to do all of the things the President would do to foster interest in desert plants were he located in the districts.

Deputy Regional Vice-Presidents represent the Regional Vice-Presidents in their respective organizations or communities. It is their duty to perform all of the acts that the Regional Vice-President would do were he in that organization or community, to establish new clubs as occasions arise in their respective communities, to report monthly progress to their Regional Vice-President who in turn will present a summary of all reports from his district to the President.

\* \* \*

Letters are still coming in from members who signify their willingness to have visitors see their gardens. If you fall into this category, and will drop me a line to that effect, I will include your name in my index file. To those of you who are contemplating a trip, don't fail to make use of this file—it is being compiled for your convenience and pleasure.

The "Flower Grower" has a page devoted to Clubs and Societies in each issue. Here is a chance to let the plant world know what you are doing. Each affiliate should send me a few paragraphs on their activities, the name of their secretary and meeting date, the purpose of their club and any timely notes. Representation among the other flower growers on the Club and Society page will make new contacts for us all.

ERVIN STRONG,  
315½ W. Erna, La Habra, Calif.

#### FROM VIRGINIA

The Cactus Club of Buena Vista was recently organized with fifteen most enthusiastic members. The officers are: Mrs. J. Frank Key, President; Mrs. C. E. Cunningham, First Vice-President; Mrs. Bruce Graves, Second Vice-President; Mrs. H. L. Turnage, Secretary; Mrs. A. H. Griffith, Treasurer; Mrs. L. Z. Johnston and Mrs. S. K. Reid, Directors. The Committees are Historian, Librarian, Membership, Plant Exchange, Program, Scrapbook, Show, Study Course, Telephone, Publicity, Transportation and Year Book.

Each and every member is on her toes to collect more cacti and to identify those she has. Each member has her own year book containing the lists of members with their telephone numbers, the officers, committees, hostesses, and programs. The covers for these were painted by one of the members and the text typed by three members.

The programs for the year are very interesting, being made up of papers on "Succulents for Easy House Plants," "The Appeal of Cactus," "Cactus Plants for the Window and Rock Garden," "Slides of a Cactus Collection," "Cactus in its Home," "South African Plants for the Sunroom," "The Giant Sahuaro," and "Flowering Wonders of the Desert." Two visits have been made to other cactus collections and another is planned in place of a program for that particular month.

All the members are planning to make scrap books of pictures and we are beginning a small circulating library. So far we have "Cacti for the Amateur" and "Succulents for the Amateur." We have affiliated with the National Society and will circulate the JOURNAL among the members. One of the members has her own JOURNAL. We hope to have several subscriptions to the new BULLETIN in the very near future. We are studying the "Glossary" and Mr. Marshall's "Cactaceae."

We all take pictures of our plants keeping the names, dates, and any information we can get about each one.

We also have a Plant Exchange Committee that always functions—and you may be certain that each member has a cutting of every plant in the club that will "slip."

MRS. J. FRANK KEY, President.

#### NEW SUCCULENT BOOK

*Succulent Plants of New and Old World Deserts*—E. J. Alexander. New York Botanical Garden, Fordham, P. O., New York City. Price 50c.

This 62 page book consists of reprints from their monthly magazine of a series of articles on Cacti and the Other Succulents by E. J. Alexander. The author is well known to JOURNAL readers and the 100 photographs are close to perfection.

Written in a readable and popular style it is scientifically correct and should be in each of our libraries.

Books of this kind record the material being grown in public gardens and others should follow the constructive work of the author and The New York Botanical Garden.

The following 16-page insert is the 2nd and 3rd installment of Werdermann's book "Brasilien und Seine Saulenkakteen"





FIG. 57. *Haworthia Herrei* Poelln. nat. size.

## Notes on Haworthias

By J. R. BROWN

*Haworthia Herrei* Poelln. in Repert. Sp. Nov. XXVI (1929) 24, XXVIII (1930) 101, XLIII (1938) 109, in Desert Plant Life IX (1937) 33, photo.

Plant with leafy stems to 15 cm. tall, 3-4 cm. diam., and proliferous from the base. Leaves 3-5 cm. long, about 10-12 mm. wide towards the base, lanceolate-deltoid, acuminate, erect, greyish-green, young leaves more glaucous, face of leaves somewhat flat, smooth or with 1-2 slightly raised lengthwise lines which bear a few tubercles, back rounded and keeled in the upper part and with 5-10 slightly raised lengthwise lines which seldom reach the tip and which are irregularly tubercled, the tubercles solitary, confluent or sometimes absent. The tubercles on face and back the same color as the leaf, margins irregularly serrate or sometimes partly smooth especially near the somewhat pungent tips.

Locality: Type locality unknown. Recorded

from Kendrew, Graaff Reinet Distr., Paardepoort, Jansenville Distr., Kleinwintersfontein, Jansenville Distr., and Jansenville.

Named in honor of H. Herre, curator of the Botanic Gardens of the University of Stellenbosch.

*Haworthia Herrei* (sect. *Coarctatae* Berger) is a fairly well marked sp. due to its color, leaf shape, the many more or less tubercled lines on back of leaves and the irregular margins. In the sun the leaf color may become a somewhat reddish-purple hue, especially towards the tips, and during the growing period the younger leaves may be slightly recurved.

*Haworthia Herrei* var. *depauperata* Poelln. in Repert. Sp. Nov. XXXI (1932) 86.

Back of leaves with 1-5 raised lengthwise lines and with few tubercles.

Locality: Sundays River, between Steytlerville and Port Elizabeth, also recorded from Paardepoort, Jansenville and Somerset East.

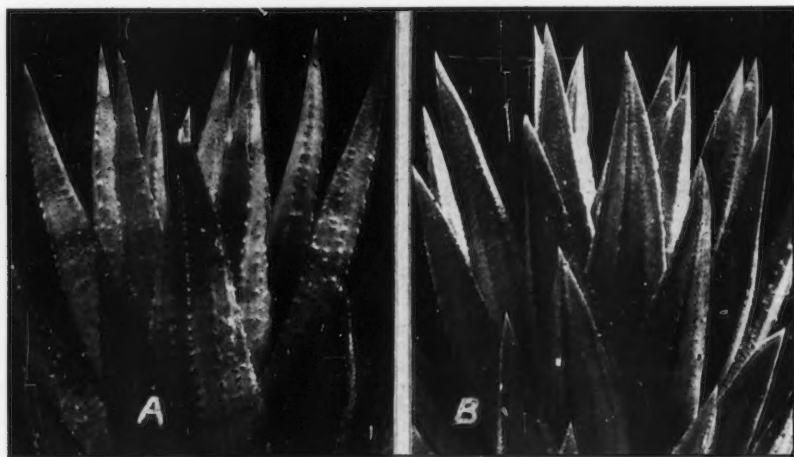


FIG. 58.

The leafy stems of this var. are slightly wider, to 4.5 cm., and probably bear more leaves than the type, but the color and shape of leaves is the same. The lines and tubercles vary on different leaves of the same plant, sometimes the back of a leaf may be almost smooth except for the keel.

The photo illustrating *Haworthia Herrei* shows a young plant, the oldest plant seen had a stem 15 cm. in height. Sections of the leafy stems are also shown, somewhat enlarged: (A) *Haw. Herrei* and (B) *Haw. Herrei*, var. *depauperata*.

#### FLOWERING PLANTS AND FERNS OF ARIZONA

By T. H. KEARNEY, R. H. PEEBLES, and Collaborators

Few states have a richer and more diversified flora than Arizona. Some 3,000 species of flowering plants and ferns are known to grow there without cultivation, including nearly 150 species that are not known to occur outside the state. Of *Cactaceae*, alone, there are 78 species, this family being better represented than in any other state except Texas.

It is remarkable that no comprehensive account of this most interesting flora has been published hitherto, with the exception of another recent publication, by I. Tridestrom and T. Kittell, "A Flora of New Mexico and Arizona," 1941. Unless one has access to a large herbarium and a botanical library, it is extremely difficult to identify Arizona plants with any degree of certainty. It is hoped that the publication here described will make the task easier.

Keys to the families, the genera of each family, and the species of each genus are provided. The effort has been made to construct these keys so that they can be used by persons whose technical knowledge of the plants is not extensive. Brief descriptions of the families and genera are given. Under each species there are stated the geographical and altitudinal range within the state, the habitat, and the time of flowering. The general geographical distribution is also given.

For plants of economic importance, notes are provided on the forage, timber, soil-binding, and ornamental value, and the medicinal or poisonous properties. Special attention is given to utilization by the Indians of the state, as food, medicine, etc.

Introductory chapters deal with the history of botani-

cal explorations in Arizona, the geographical relationships of the flora, and the types of vegetation, the last contributed by Dr. Forrest Shreve of the Carnegie Institution of Washington.

Besides the authors whose names appear on the title page, 24 of the leading botanists of the country have contributed treatments of the families and genera in which they specialize. It is recognized that these contributions add greatly to the authority of the work.

Society members will be especially interested in Mr. Peebles' cactus pictures and the 24 pages devoted to keys and descriptions of the native cacti. Members can order this 1069 page book, bound in cloth, for \$2.15 from the Supt. of Documents, Washington, D.C. Ask for U. S. Dept. of Agr. Misc. Publications No. 423.

#### BOOK REVIEW

A Handbook of Flower Show Judging, published by National Council of State Garden Clubs, Inc.—Sarah V. Coombs, Chairman of Committee. The ninety pages of this 3rd edition is packed with valuable material that has been compiled over the past six years by specialized groups throughout the nation. Among the many features are: Outline for a school of 5-courses in flower show judging, types of flower shows and flower show practice, judging judges, hints for a well-balanced show, detailed discussions about the various classes, scales for judging specialized groups of plants as compiled by the various societies, sample schedule, definitions of terms used in connection with flower shows, complete index, and color chart of the Fischer-New England Gladiolus Society. Price \$1.00 from Executive Headquarters, National Council of State Garden Clubs, Inc., Hotel Roosevelt, New York City.

# QUESTIONS AND ANSWERS

Part of a series consisting of correspondence between W. Taylor Marshall and Graham Heid in which many of the growers' problems will be discussed.

## NEMATODES

DEAR BILL:

After living a happy, Puritan life these thirty-odd years, what is my reward? Nematodes have invaded my cactus garden! Several plants refused to put out new growth this year, so I examined their roots. They looked like strings of beads! I send a photograph herewith, so all may recognize the symptoms. Fortunately the infected bed is small and isolated, so if it is not too late, I'd like to try control measures. I can, without too much hazard, remove all of the plants from this bed. Then how do you suggest proceeding? I'll try anything, from steaming them to stabbing them. When nematodes really get a start, are all genera of cacti equally affected and do they all suffer, or are some more able to withstand the onslaught?

This last dry winter seems to have been good for my *Echinocerei*. All of the plants sent by Mrs. Rodgers and Mrs. Bullington have just finished a fine display of blooms, and those sent by Dr. Boissevain are coming into bud.

I'm still after that white-flowered *E. Fendlerii*, but no luck so far.

Next time I'll have some questions on scale and mealy-bugs.

Cordially yours,

GRAHAM.

DEAR GRAHAM:

Your letter advising of the presence of root-knot nematodes in one bed of your garden presents a knotty problem which is less naughty than most collectors believe. They can be eliminated by one of several methods but I doubt the necessity of complete elimination because most species of cactus and other succulents are not greatly impeded by this particular pest.

The lowest bed in my garden has been infected with nematodes for the past four years yet the plants in that bed grow as well and flower as well as similar plants in non-infected beds. This I have accomplished by the use of more fertilizer and water.

Two very large plants of *Eriocereus Bonplandii* are located there and these plants produce as many as 30 flowers in a single night many times each season and are then visited by all of my neighbors. The only species tried out in that bed which did not respond satisfactorily is *Nyctocereus serpentinus* which assumed a yellowish coloring, grew very slowly and did not flower at all.

Fortunately our brothers in the colder climates are not worried by this particular pest which is unable to withstand the freezing of the ground in winter. Those living in the milder climates will find that the effects on their plants will be negligible if the beds infected are heavily fertilized and given more water in growing weather.



FIG. 59. LEFT: Roots of a cactus infected by Nematodes showing the characteristic root knots. RIGHT: Tuberos roots of *Mam. sempervivi*. Note that the underground protuberances are a continuation of the body and not root knots. Notice the fibrous roots are clean."

To the well ordered mind, moniliform roots on a plant which should have fibrous roots is intolerable and the necessity of complete elimination of root-knot nematodes becomes paramount. Complete elimination is possible by taking all plants out of the infected bed and removing all roots from the plants. Cut up into the plant body if necessary, until no sign of discolored flesh (due to infestation) is noted. After allowing the fresh cut to form a callus, re-root in clean soil.

Now spread Cynaomid or Cyanogas over the surface of the bed in the quantities indicated on the package and turn into the soil with a spade to a depth of six or seven inches and water the bed lightly. Be sure to keep all cats and dogs away from the bed during treatment as a deadly gas is released into the ground which can seriously injure any pet exposed to it.

Turn the soil with a spade every third day for nine days and do not replant the bed for at least 30 days after treatment. This method has proved efficient in every instance.

It is possible, in less advanced cases of infection, to clear up the beds without removing plants by watering the bed with a solution of dychloroethyl-ether in water. This chemical can most easily be secured in commercial lawn-moth sprays such as "Lawn-a-gen." This method will kill the roots of many succulent plants while killing the nematodes but the plants will soon put out new roots.

The root-knot nematode is a microscopically small wire worm which bores into roots and there multiplies and forms root galls or knots each of which may contain thousands of the minute organisms. Cyanogas or Dichloroethyl-ether kills this organism by releasing gas into the soil. However, as I said in the beginning, extra feeding and watering will overcome the injurious effect of the pests and produce normal growth in almost all species of succulents.

Awaiting with interest your comments on scale, mealy-bugs and other pests I remain,

Sincerely yours,

BILL.

### Conservatories of Some Oklahoma City Cactus and Succulent Collectors

By LONA EATON MILLER

Next to actually collecting cacti and succulents, the most popular phase of the hobby is caring for them in a conservatory. Because of the expenditure of money required for constructing a greenhouse, it is still one of the desires of all, but limited angles of the hobby. There are a surprising number of them in Oklahoma City, and they are increasing. Some to become acquainted with are owned by: Charles Polaski, Mrs. Harry T. Johnson, Mr. J. R. Orrell, C. A. Holding, and Mr. and Mrs. C. L. Wiese.

Three years ago Charles Polaski, 1630 Exchange avenue, became so interested in growing cacti and succulents, and acquired so many plants he decided to

build a conservatory. The building is about 18 ft. by 25 ft. The floor and partial side walls are of native stone, and it was every bit built by the owner.

In his collection of plants are about 450 cacti and about 200 succulents. Polaski's hobby has taken him to Arizona, Nevada, New Mexico, Mexico, South Texas, Utah, and Colorado in search of native plants. Last spring he added to his collection a 5 ft. 6 in. *Carnegiea*, a native Arizona plant. Two interesting features of the greenhouse are the seedling bed and a flat containing unusual varieties of cactus plants. There are about 1300 plants in the total collection.

The 9 ft. by 15 ft. lean-to conservatory belonging to Mrs. Harry T. Johnson, 1511 North Independence Avenue, is housing about 1,000 cacti and succulent plants. A *Nopalea*, a South American prickly pear cacti is one of the most interesting plants in the conservatory. In its native habitation it is a spring bloomer, and come December in Oklahoma (which is the spring season in South America) the *Nopalea*, keeping its native habits, begins putting on buds. Among the choicest plants in the conservatory are many varieties of Mexican and South American cactus and succulent plants.

Late last autumn season the building a conservatory bug bit another cactus and succulent fan, when J. R. Orrell, 1129 Northeast Eighteenth Street, began the construction of his now finished greenhouse. He built it himself, even to the foundation, and to laying the brick floor. He has a collection of about 500 plants, which are housed in the conservatory. He likes to collect cacti and succulent plants because he finds so many interesting aspects in the many different kinds. Recently he has taken up the study of plant grafting, and has successfully grafted an *Epithelantha v. greggii*. When construction on the greenhouse was begun a Paul's scarlet climbing rose bush was in the area to be enclosed. It was not disturbed, and bloomed about four months earlier than its normal blooming time, because of the glass protection. The collection of cactus and succulent plants is about two and a half years old. Many were obtained on field trips within the boundaries of Oklahoma. In addition to the native plants, there are plants from Africa, South America, Mexico, New Mexico, Arizona, and South Texas.

C. A. Holding, 3312 South Shields, houses some of his cacti and succulents in a 10 ft. by 21 ft. greenhouse. Several *Brittonia davisii* are now blooming. Perhaps the largest genera are the *Escheveria*, and *Echinopsis*. Several of the latter are also now blooming. A significant feature of the conservatory is the large seedling bed that must be kept damp in a room temperature of 90°. About 1200 plants are in the collection.

A building 8 ft. by 12 ft. is the first unit of a larger conservatory planned at the home of Mr. and Mrs. C. L. Wiese, 1411 Northwest Forty-seventh Street. It is now used for starting bedding plants, wintering plants that are not hardy, and for developing plants for use in ornamental landscaping. The conservatory houses about 150 cacti and succulents including *Ha-worthias*, *Aloes*, *Escheverias*, *Stapelias*, and *Cephalocereus*. A small greenhouse gas stove provides sufficient heat when the outside temperature is low.

There is a lot of arduous labor connected with a conservatory. It is no avocation for a lazy person. For in addition to the actual labor involved, there is a book-keeping task of no mean proportions. A record of all the plants—their habits, blooming date, seed planting date, transplanting date, and money expenditures are carefully charted in the records of every painstakingly operated conservatory, but all cactus and succulent collectors take their hobby very seriously—perhaps that is one reason there are so many conservatories.





FIG. 60.

General Douglas MacArthur is one of the 1942 introductions of Mrs. W. D. Monmonier of Ventura, California. The flower is a light tangerine with a terra-cotta center. It opens flat and is 9 inches across with petals  $1\frac{3}{4}$  inches wide. The plant stems are flat.

## Decoration Day

Part V of Series

By JACOLYN MANNING, M.D.

In the pleasant homes of the Mississippi Valley in the last century, from the Alleghanies to the Rockies, the thirtieth of May was fondly and reverently called Decoration Day.

All children loved Decoration Day. There was ice cream, a parade led by the fife and drum corps, and wreaths floating on the water. It was the holiday filled with flowers and perfume, music and marching feet. Few of the children were touched with more than traditional sorrow. For the mourners, there were gardens of delicate flowers whose transient beauty, used in carpeting the green of the beloved's grave, could

in some subtle way, shrive sorrow.

It was the true American May Day, when the overflow of chastened beauty from garden and orchard, was gathered and transported at earliest dawn to weave an evanescent tapestry across God's Acre. Lilacs and bridal wreath, peonies and syringas, the precious lily of the valley, and the early hyacinth, with flowering branches from the orchard, and wild crabapple trees—fashioned the annual memorial to those who had gone before.

Here on the coast Nature is so lavish we may use flowers much more exotic in weaving mosaic

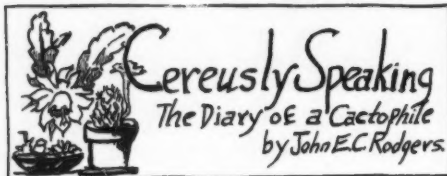
rugs at dawn, to spread across the hallowed but lonely couch, on the mesa.

This May of 1942, whose tortuous presage of loss casts a shadow over every hearth, a daughter of Pasadena sent all the overflowing treasure of her many *Epiphyllum* houses to a central burying ground, as a fresh and lovely solace to aching hearts.

These sensuous flowers, unrivaled in the most appealing beauty of color and line, were handled carefully by trained fingers that understood proper placement to secure long hours of unfading loveliness. Radiance from the great orchidaceous blossoms spread glowing rugs on the fragrant grass, until the generous supply, so eagerly sought, was exhausted.

*Epiphyllum* flowers, so gay, luminous and fragile in appearance, have petals of velvety texture, which stand up surprisingly for three or more days. The bloom is so profuse in season that mammoth buds open daily. The regular season is from early Easter until the Fourth, though in large collections hybrids may be found in flower every month of the year. It is the month of May, however, that brings the tumultuous avalanche.

As the use of *Epiphyllums* in mausoleum and grave decor was experimental, they were observed for forty-eight hours. The cut flowers flagged on the second morning. Blooming plants continued brilliant in moderate sunshine, and in deep shade their radiant beauty was unimpaired. Their use attracted sensational attention.



### July in Ohio

#### Part VII

July 1 *Harrisia fragrans* and *tortuosa* budded. Also *Hamatocactus* (*Ferocactus*) *hamatacanthus*.

July 2. Last year *Epiphyllum anguliger* was budded. Almost impossible to tell it from *E. Darrabii*. Pricked the four species of *Fraileas* into flats. The easiest one to grow is *F. grabliana* and the most difficult is *pumila*. *Fraileas* are not spectacular as plants but a good collector's item.

July 3. Only a year ago we started for St. Louis to attend the First Convention of the Cactus and Succulent Society. A high spot in our cactus adventures. Dr. Machwart, one of our most ardent cactophiles, vowed he wouldn't brave St. Louis on the Fourth of July, not even for cacti. Professor Otto Laporte of Ann Arbor, Michigan, confrere of Dr. Clover and a *Euphorbia* collector, was here Tuesday afternoon. Said that thoughts of St. Louis heat certainly kept him from the 1941 convention. But it was cool when we left here. Rained from Fremont, Ohio, to Vandalia, Il-

linois, where we stayed the night. We took a back room in a tourist home to get away from the traffic noises—only to find the house backed on a railroad siding, used every hour of the night. At 2 o'clock the door slammed shut and pushed our door stop inwards. We turned on the light and found the door stop was a nice piece of shaped marble, inscribed "Lottie—1878." We decided the screeching engines had waked the dead and giggled hysterically until the tired tourists across the hall slammed a transom.

July 4. This day in 1932, was 48° at noon. Prospects are that I won't wear an overcoat this noon. Am working at the open-hearth at the steel mill during my school vacation. 100° is cool in that spot. And to think the old thermometer never went above 79° in St. Louis any time we were there. My thoughts strayed all day to the Chase Hotel a year ago. Old Home Week couldn't have been nicer. Just to meet the folks face to face we had known in the JOURNAL. Our Regional V. P., Charles R. Cole of Cincinnati, was assisting registrar. Had a time getting titles and recognitions on our identification badges. . . . Then the Shaw gardens with friendly Lad Cutak as guide. I'll remember the luncheon under the trees 'til my dying day. Good company, good food. Southern hospitality at its best. . . . Saw the original notes of Engelmann among many other interesting volumes at the Shaw library. . . . Heard Dr. Greenman review Engelmann's life work. Surely more than a mere man could do in a life time. Guests of the St. Louis Horticulture Society in the evening.

July 5. Still in St. Louis in my mind, although I am sitting here under my own grape arbor checking over my Aloes. Left them pretty dry during the winter, but heavy rains made them plump again. While waiting for the bus for the Seiloff Nurseries (I'm still in St. Louis) chatted with Gray from Cincinnati about his nut trees and cacti. Talked to S. E. Johnson of Louisville, Ky., about cacti and found he was the owner of Cleveland's Blue Boar, our favorite eating spot in that town. We got better acquainted with Mrs. Frank Seinsheimer from Cincinnati (The Duchess, I called her) on that trip—a well read, well traveled botanist; likes cacti, but can't for the life of her understand our devotion to them alone, when there are so many interesting plants in the world. Seiloff's had a most desirable stock of plants, hoped to find something for my collection, yet pleased to note dealers in our district have kept abreast the collectors' needs, also. A grand lunch, much buying of plants, and friendly chats. Then in the evening at the hotel, the super-deluxe banquet. Sandy and I were there and can prove it. In order to get the speaker's table picture that appeared in the JOURNAL, the photographer had to shoot our backs. Dr. Clover's vivid description and pictures of her Canyon trip; Lad Cutak's Texas trip; President Marshall's thrilling trips; Harry Johnson's true-to-life slides. . . . Can't forget 'em. To us whose field trips are confined to dime stores and greenhouses, and botanical gardens, it was just wonderful.

July 6. The Oklahoma Cactus Girls, Mrs. Johnson and Mrs. Seela, left St. Louis as we did early in the morning. Hated to leave, for we had had such a good time. Talked the whole way home about the New Jersey Garrabrants; the modest unassuming youth, James Gerdeman; the quiet dignity of President Marshall; the unexpected youthfulness of Editor Haselton; the jaunty Mace Taylor; the earnest, sincere, and humorous Pat White of Michigan; and Ervin Strong of California; the friendliness of the Niermanns, the Cleveringers, Mrs. Hunter of Chicago, the Vestals of the University of Illinois, and the Ways of Marysville. And that irrepressible W. P. Reedy from McComb,

Miss. They are the stuff pleasant dreams are made of.

July 9. The little red "blisters" which I knew were seedlings five years ago of *Lophophora Williamsii* and *Ariocarpus fissuratus* only because I had planted seeds of same, are really nice plants now. *A. fissuratus* seedlings resemble *Leuchtenbergia principis* at that tender age. In 1939, Mr. Williams, Miss Standish, both local cactus fans, and Sandy and I returned from a trip to Zeiglers in Spencerport. Brought home four succulents and fifteen cacti. One of them, *Coryphantha octacantha*, a good sized plant now. Has two glands, otherwise like *C. exsudans*. Got a *Huernia Rogersii* for the name. Probably as near as I'll ever get to my name for a species.

July 9. In 1940, used "Rootone," hormone powder, on *Echinocereus viridiflorus*, *E. Knippelianus*, *Malacocarpus Ottonis*, *Mam. elegans*, *Bergerocactus Emoryi*, and *Opuntia austrina* seeds. Counted the seeds carefully before planting. "Rootone" is supposed to increase percentage of germination. Covered the soil with fine gravel to retain moisture and to protect seedlings from damping off.

July 13. For the last six years, about now, I have had two *Epiphyllum oxypetalum* plants bloom. One has a 12-inch bloom and the other 9-inch. The larger one opens around 6:30 p. m. and the smaller about 10 p. m. Stems on the big bloom are more pointed and it has 13 to 15 stigma rays, while the other bloom has from 15 to 17. We're suffering a heat wave in 1936. Caused 1,821 deaths in the U. S. A. Began July 8. 1940 temperature was 47°

July 15. "Believe It or Not"—page Ripley. Only six days later, in 1940, the seeds I planted were up of *Mam. elegans*, *Echinocereus Knippelianus*, and *Malacocarpus Ottonis*. Evidently "Rootone" did some good. Diary says, "Seedlings are thick as hair on a dog. 60% of the *elegans*, 66% of the *Knippelianus* and 80% of the *Ottomis* are up. Used 'Semesan' spray to nip 'damping off' before it starts." They look pretty nice now. Today the bud on *Acanthocereus pentagonus* opened. I like it. First bloomed in 1934 when it was two years old. (See Part I, 1932.)

July 18. Three years ago, I planted seed from an *Echinopsis* fruit hybridized by Dr. Machwart of Parma. "Doc" didn't make a record of one he used—had several in bloom at the time, so it may be anything. Have 25 plants from these seeds. Some are close to three years old and measure 3½ inches in diameter. Nos. 24 and 25, about two weeks old now, can be seen plainly—with a glass. Houghton warns us never to throw away a seed pan until all the seeds are accounted for. Nor do I. *Gymnocalycium platense* is paying its rent in blooms. Was a "star boarder" until two years ago. Supposed to be "blooming size" when I got it. Kept it for three whole years. I finally gave it coolness at the roots, and plenty of water, (Houghton, page 126, says arid) with partial shade (Houghton same page, full sun) in summer, fall, and winter. *Epiphyllum cartagense* has bloomed today, fragrant, straggly rather than compact growth, but blooms make up for this.

July 21. In 1936, in behalf of the Cactus Show-to-be at the Great Lakes Exposition, Sandy and I put the children in the back seat of the old Essex, and traveled over 600 miles in this section of Ohio, and visited 59 cactus enthusiasts and collectors whom we had listed. In 1940, we had a meeting of the Midwest Society at Oren Casey's home in Mentor, Ohio. He had his plants (keeps them in the basement in the winter) in raised beds of sand. Had *Chamaecereus Sylvestrii*, *Selenicereus Macdonaldiae*, *Aporocactus flagelliformis*, *Malacocarpus Ottonis*, *Epiphyllum oxypetalum* in bud. *Echinocereus rigidissimus* and *Astrophytum myriostigma*

were in bloom. Had my own plants in sand beds last year. Used *Pereskias* to shade the tenderer types. Helped them all, I think.

July 26. The results of our trip showed up this night in '36: 18 amateur and 3 commercial exhibitors showed up, giving us over 1200 species of cacti and succulents for display. Sandy and I worked all night with the show force in setting up the desert scene arrangement. Used peat moss for bedding instead of sand because of the weight. Buildings were only temporary structures.

July 27. News reporters, the following day, attributed to me all the old bromides about a cactus you have ever heard. I wondered could I ever live it down. "But you can't attract flies with vinegar," said Mr. Brown, the show manager. I still find the same trouble with newspaper stories.

July 28. The largest blooming plant I have seen around here in a private collection is at the E. S. Burke Estate, Chagrin Falls, Ohio. It is a 10 foot *Cereus peruvianus*. It had as many as a dozen gorgeous flowers at the time of the exhibit.

July 29. The Cactus and Succulent Show netted the Horticultural Building at the Exposition (the project of the Cleveland Garden Center, headed by Mrs. William G. Mather), its largest attendance. Asked us to remain an extra week. People are fascinated by these plants wherever they see them.

#### July 31 Jottings

1934. Made five cuttings of *Cereus peruvianus monstrosus* and put them on a shelf to callus. Planted 12 offsets in sand from *Mam. camptotricha* which had nice callouses.

1935. *Coryphantha elephantidens* graft took only on one side. Language is censored here—regrafted it.

1936. Judging at Exposition gave No. 287, yours truly, four first ribbons: (1) most complete collection, (2) finest specimen plant, (3) best exhibit of cristates, (4) rarest plant. Also got the Great Lakes Medal for finest amateur collection. Walter Rutter, Akron commercial, former president of the Midwest Society, got the medal for the best exhibit in growers class.

1937. Five members of the Wooster, Ohio, Garden Club here to see my plants.

1938. Planted seed from *Frailea pumila* (blooms for me at high noon and closes by 3 p. m.) Used powdered tobacco about pots and in soil. Good in potting soil, I find, to keep thrips away.

1939. First *Gym. Mihanovichii* seedlings up from seed planted July 11. *Frailea pumila* seedlings planted this date last year, ¼ inch in diameter.

1940. *G. Mihanovichii* seedlings 2 years old and ¾ inch in diameter.

1941. Small 5-headed plant that resembles *C. exsudans* has 7 spines which are hollow, open underneath like a star-fish arm and twisted like a mountain-sheep horn. Found it in a tray from seed which were labeled *Coryphantha bumamma*. All the rest were true to type.

#### EDITOR'S NOTE

"Brazil and Its Columnar Cacti"

Reprint—page 7. *Cereus fernambucensis* was thus erroneously spelled in its early publication. Britton and Rose corrected this mistake in Vol. II, pg. 14 to *Cereus pernambucensis* which was named after Pernambuco, Brazil.

Generic abbreviations such as *Pilocer.* (p. 8) follow Werdermann's copy but are not recommended for general use.

*Cephalocereus rhodanthus*, pg. 16, is called *Arrojadoa rhodantha* by Marshall-Bock in "Cactaceae" (1942) on pg. 100.

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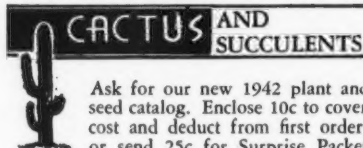
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